



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

SHOULD HIGH-SCHOOL BOTANY AND ZOÖLOGY BE TAUGHT WITH REFERENCE TO COLLEGE EN- TRANCE REQUIREMENTS?¹

OTIS W. CALDWELL
State Normal School, Charleston, Ill.

In attempting to arrive at an equitable statement of this question, several interests must be considered.

First, to what extent do high schools exist in order to prepare boys and girls for college? Approximately 6 per cent. of all the pupils who enter the elementary schools finish the eighth-grade work, and less than 5 per cent. enter the high school. Obviously elementary-school work is not planned primarily to prepare pupils for the high school. Also the small number from the elementary schools who go to high school could be cited as one argument against arranging elementary work with any large degree of reference to the school work that is to follow.

Of the 5 per cent. (a little less) of the number of pupils who enter high school, one in ten goes to college. If the argument suggested above holds in this case, the high-school course should not be arranged primarily with reference to the work of the college.

It is said that there are about thirty-two million people in the United States who work with head or hand to support themselves and those who are dependent upon them. Of this number about two million earn their livelihood by work predominantly mental—teachers, lawyers, physicians, ministers, office men, and clerks of all classes. The two-million class receives almost the entire output of the college and by far the greater part of the product of the high school. It would seem that these two upper branches of the educational system are planned for the small minority of those who do the work of the whole people. It must

¹ A summary of a discussion given before the Conference in Botany and Zoölogy.

be recognized, however, that, although this group that is smaller in number is but one-fifteenth as large as the other group, it is in a large measure directive of the activities of the larger group, and because of this more attention relatively should be given to its education. This in no sense restricts education to the minority, since those of the majority who wish may join the minority.

However it is considered, it seems that college education and high-school education as well must be for the few. We must give the best education we can to those who will take it, but most of the thirty millions will not attend college or high school, or even the elementary schools, for any considerable length of time. The nature of human limitations and of the work that must be done are such as to render it inadvisable that all who are to join the world's workers should have a college or high-school education. Each person should have as good an education as, in the broadest sense, he can use in his life activities.

It is evident that each educational group contributes but a small part of its body to the group next above it. If its work is planned to meet the needs of the group above it, it is planned primarily for a small minority of its body, a number in no case exceeding 6 per cent. of its students.¹ The work of each school should be planned to meet the educational needs of the majority of its students. Whatever constitutes the best education for that majority should be accepted by the school next higher as qualification for entrance into its beginning classes. If the work of the higher school is so peculiar as to involve special preparation, that preparation should be given apart from the regular work of the majority, and should not involve any loss of time or opportunity to the majority.

This brings us directly to the question as to what right colleges may have to establish entrance requirements. It is fairly clear that merely to have a measure by which to gauge prospective college students the colleges have not a large measure of justification for setting entrance requirements. But even this small degree is justification sufficient, since the college must

¹ Report of the U. S. Commissioner of Education for 1904.

assure itself that its entrants have foundation sufficient for further work.

But the larger reason for establishing such requirements is in order that the high schools themselves may work according to the best standards. The colleges have a right to assist in formulating these standards in so far as the colleges have a knowledge of and interest in the needs of the high schools and conditions that prevail therein. Many college men have been students in high schools, students in colleges, teachers in elementary schools, in high schools, and now in college. They have a larger knowledge of the subjects taught, and, if their previous experiences have been wisely used, they should have a highly desirable perspective relative to the problem of what is good for the high-school pupil. To such men may come even better perspective than may belong to the high-school teacher.

Unfortunately, the college, instead of securing the services of men such as indicated above in establishing relations with high schools, too often appoint to this service younger men meager in experience, except in investigation in a special field of study. Such men, though they may frequently speak in empty terms of "the pedagogy of the subject," really think of the high school as preparatory to college work, sometimes as preparatory to college work in a special field. When one suggests to such a man that a problem in research, surpassing any with which he has yet dealt, is that of solving the relation of his subject to the highest general education of the majority of the high-school students, he is too often rewarded by receiving the smile of contempt that knowledge sometimes casts upon ignorance. High-school teachers greatly need the assistance of those college men who have insight into high-school problems, not in order to fit students for college primarily, but to give the best and most usable education to the largest number of students in the high school.

College entrance requirements in botany and zoölogy exhibit wide variations. An examination of the published statements of colleges and universities throughout the entire country shows a range from those who say, "Any course (half-year or year) will be satisfactory which brings the pupils directly into contact with

plants (or animals), either in the laboratory or in their natural surroundings out of doors," to at least one who says: "We neither require nor accept either botany or zoölogy for entrance into a freshman class. Physics and chemistry are the only natural sciences we take into account." There are very few colleges, however, that refuse to recognize botany and zoölogy in any form. Some make definite statement as to just what must be taught. Some go so far as to give detailed outlines for topics to be studied, and to furnish sets of questions used in entrance examinations of previous years. Such a system is indicative solely of "preparation for college," not high-school education. Such attempts to regulate the courses in these subjects deserve the widest condemnation. Even should they contain some good material, it is organized upon a false basis and should be avoided.

The colleges of the central states have, in the main, offered great freedom to high-school students who anticipate entering college. In this region almost any good course will be accepted when presented as an entrance requirement. There is considerable difference in the published statements of colleges of the central states, but little or no difference in actual practice in accepting students who present themselves. So far as I am able to judge, the colleges in the main are anxious to accept any course that seems best for the majority of the students in the high school. With this as the point of view of the college, the high school should examine carefully the published requirements of the colleges, not as college requirements, but as the college's expression of what it thinks best for students of high-school age. Final decision as to adoption of a course must be made by the high school, not by the college, and in the light of what is best for the majority who are not to go to college. What is best for this majority is good for the student who is to go to college, and will be accepted by the college.

We must not forget that much good has come to the high school through college requirements merely because they were requirements. The desire of the high school to be "accredited" has stimulated development that would have been much more slow in coming had this influence from without been absent. New

apparatus, new courses, new teachers, new buildings have come just because the college said: "You must do better before we can commission you." It is desirable to have the high school improve solely in order that it may be better; but if it will not do so for that reason, it is worth while to have it improve in order that people may see that it is better.